

REMARKS

This paper is submitted in response to the Office Action for the above-identified application mailed 5 December 2007.

The Applicants call to the attention of the Examiner that a Request for Continued Examination has been jointly submitted with this Response.

In the Office Action, the rejection of Claims 183-201 under 35 USC 103(a) as being unpatentable over Archibald (U.S. Pat. No. 4,236,880) in view of Epstein et al. (U.S. Pat. No. 5,100,380/Re. 36,871) was continued.

The Applicants thank the Examiner for the courtesies shown their representatives in the telephone interview of 4 December 2007.

Initially under cover of this Response minor amendments are made to the specification and drawings. No new matter is added.

Claims 183, 186, 189-191 and 193-195 are amended. Claims 183, 189 and 198 remain the independent claims of this application.

The present rejection is based in part on the position that that Archibald discloses an assembly wherein, "during operation . . . the pump chamber is in a fixed and stationary position."<sup>1</sup> In response to this comment, the Applicants notes that Archibald states that

When the pump is [in] normal operation, spring 158 is compressed and urges the surfaces of cam housing 23 [the housing] and diaphragm enclosure 22 [that supports the pump chamber] slightly apart.<sup>2</sup>

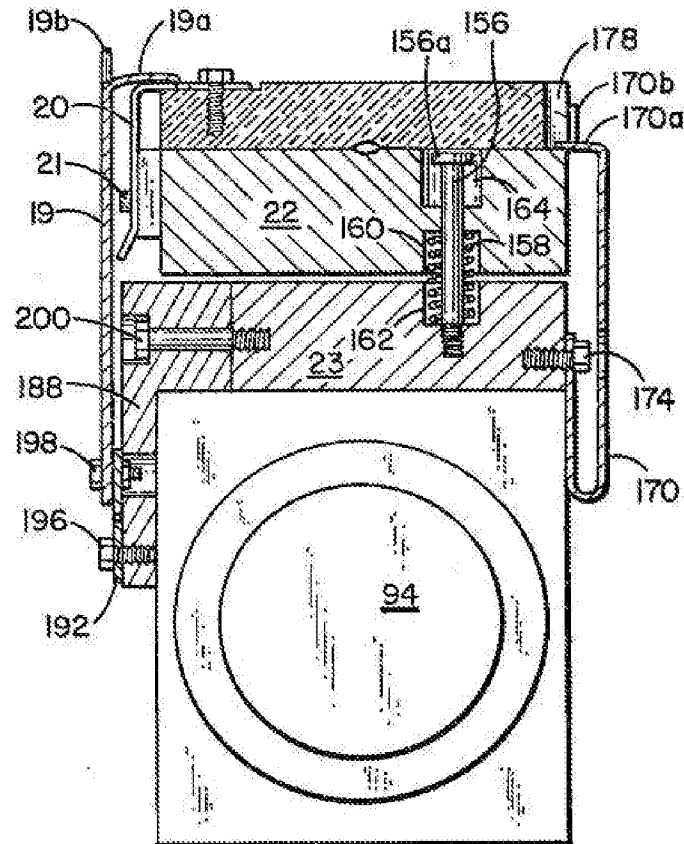
The moveably relationship of these components is seen in Archibald's' Figure 15, reproduced below as Figure 1. Here it is clear that the diaphragm enclosure and cam housing are two

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<sup>1</sup> June 5, 2007 Office Action, page 3.

<sup>2</sup> U.S. Patent No. 4,236,880, column 12, lines 63-65.

distinct components and that a spring 158 normally biases the diaphragm enclosure away from the cam housing.



**Figure 1. Figure 15 from US Pat. No. 4,236,880. The spring 158 the urges the cam housing 23 and diaphragm enclosure 22 apart is seen in the upper right quadrant.**

This arrangement is not like the assembly of Claim 183 wherein the pump chamber is "permanently fixed" relative to the base housing or of Claim 189 wherein the structural component that defines the pump chamber is "fixedly mounted" to the base housing.

Epstein's infusion system includes a housing 88 and a cassette 94 that is "slidably mounted in a channel" formed in the housing.<sup>3</sup> Epstein goes on to describe how the pumping chamber piston 272 is disposed in the housing and the pumping chamber 240 itself is contained in the cassette.

Thus, Epstein, like Archibald, is not directed to an assembly that, like the claimed invention includes a pump chamber that is fixed to the associated housing. Archibald adds springs as well as screws 156 and latch mechanism 20 and 21 that Applicant does not require to hold his pump chamber in the appropriate position. Epstein relies on a locking lever 100 and a safety mechanism 102 to hold his cassette in place.<sup>4</sup>

The claimed invention eliminates more than the expense of the above prior art features. The claimed invention makes it very unlikely that curious fingers could separate the pump chamber from the head that forces fluid through it. When the patient is using the pump away from the hospital, the result of this activity can be especially undesirable.

The invention of Applicant's independent Claims 183, 189 and 195 also includes an actuator for holding the pump valves open that, while moveable, is "not" connected to the valve drive mechanism for displacement by this mechanism.

Archibald only discloses a pump wherein its valves 44 and 46:

[A]re driven so that at least one of the two valves is closed at *all* times. (*Emphasis Added.*)<sup>5</sup>

To sterilize his pump chamber 10, Archibald requires one to sterilize it prior to inserting it in the housing 12. As

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<sup>3</sup> U.S. Patent No. 5,100,380.

<sup>4</sup> U.S. Patent No. 5,100,360, column 8, lines 38-45.

<sup>5</sup> *Ibid*, Column 6, Lines 48-49.

discussed above, this requires the addition of supplement components and opens the window to post-assembly tampering.

Epstein's merely teaches that if one wants to hold open both the inlet and outlet valves simultaneously, it is necessary to provide (1) a stepper motor 296 for regulating the state of the inlet valve; and (2) solenoid 290 for regulating the state of outlet valve. Then:

Whenever it is desired to simultaneously open any input port and the output port such as during priming, the system controller rotates the stepper motor 296 to the position that opens the selected input port and actuates the solenoid 290 to open the output port.<sup>6</sup>

Thus, even when added together, the prior art documents do not suggest providing the claimed invention, an actuator capable of simultaneously holding the inlet and outlet valves open, this not being actuated by the drive mechanism that actuates the valves.

Accordingly, independent Claims 183 and 189 are both directed to assemblies that have features and benefits that represent inventive departures from the prior art.

Claim 195 is directed to the medication delivery system of this invention wherein, in addition to an actuator for holding the valves in the hold open state that is "disconnected" from the drive assembly for movement by the drive assembly, there is a plunger for displacing the actuator. The claimed plunger is mounted to the base housing and is positioned to be displaced upon the attachment of tube set to the housing port so as to drive the actuator from the engage position to the disengaged positioned.

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<sup>6</sup> U.S. Patent. No. Re. 36,871, Column 18, Lines 47-51.

The Applicants have carefully reviewed the cited references. They have not been able to identify a component similar to the claimed plunger. If such component is present, it is requested that it be identified with specificity in the reply to the paper.

Thus, it is submitted that independent Claim 195 is, like independent Claims 183 and 189, directed to an invention that is not inherent from the prior art. Therefore it is likewise submitted that this claim is also directed to an invention entitled to patent protection.

The dependent claims are allowable at least because they depend from allowable independent claims.

Moreover, dependent Claims 186-188, 190, 191 and 193 are likewise directed to the version of the invention wherein there is a plunger or driver which displaces the actuator member/actuator element into the disengaged state. Thus, these claims, like Claim 195 are further in condition for allowance because they are independently directed to an invention that is a non-obvious variation over the prior art.

In conclusion it is respectfully submitted that all the claims of this application are directed to a patentable invention and are in an allowable form. Since the claims, as well as the other parts of this application are in an allowable state, the Applicants now courteously solicit prompt issuance of a Notice of Allowance.

Respectfully submitted,

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Enclosure: Replacement Figure 7